

BILINGUALISM AND INTELLIGENCE

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Bilingualism, like all linguistic phenomena, occurs in a social context. This social context, to a large extent, determines the kinds of questions that are asked about the linguistic phenomena in question, and bilingualism is no exception. The existence and nature of a relationship between bilingualism and intelligence has been investigated for decades, with the prevailing social paradigm determining whether researchers were expecting to find a positive or a negative relationship between bilingualism and intelligence. These expectations guided sample choices, research designs and the interpretations of findings, and almost always led to the expected outcome. There has been an abundance of evidence gathered to suggest that a relationship does exist between bilingualism and intelligence. However, the vast majority of these studies are methodologically unsound, and for this reason cannot be used to support either a negative or a positive view of a relationship between bilingualism and intelligence.

The suspicion accorded bilingual individuals dates back to Ancient Greece, where Parmenides and Zeno expressed distrust of

those who were able to speak more than one language (Fabbro, 1999: 106). In nations where monolingualism is the norm, people have long been suspicious of bilingual phenomena.

Early research into this topic looked for a negative relationship between bilingualism and intelligence, and usually found it. Researchers took the position that for a person to be able to command two languages, they would have to divide their mental resources, and thereby be unable to fully develop either, as only half of the mental resources necessary for linguistic competence would be able to be brought to bear on each language (Lambert, 1980: 4; Miller, 1983: 144; Romaine, 1989: 99; Fabbro, 1999: 106).

In the late nineteenth century, bilingualism was considered to be extremely burdensome. The prevailing paradigm of the time predicted that bilingualism would result in many problems for the individual, including mental confusion, the inhibition of acquisition of the majority language, and sometimes even split personality. Parents were advised to use only one language with their children,

and the use of a second language was to be actively discouraged, even to the point of beating a child or washing the child's mouth with soap if the child dared to speak their second (read minority) language. Bilingualism was considered to have detrimental effects not only on a child's intelligence, but also the child's spiritual development (Baker, 1993: 107). Consider this quote from Professor Laurie, who was a professor at Cambridge University during this period (1890; quoted by Baker, 1993: 107):

If it were possible for a child to live in two languages at once equally well, so much the worse. His intellectual and spiritual growth would not thereby be doubled, but halved. Unity of mind and character would have great difficulty in asserting itself in such circumstances.

And this (Jespersen, 1922:148; quoted in Romaine, 1989: 99):

It is, of course, an advantage for a child to be familiar with two languages: but without a doubt the advantage may be, and generally is, purchased too dear. First of all the child in question hardly learns either of the two languages as perfectly as he would have done if he had limited himself to one. It may seem on the surface, as if he talked just like a native, but he does not really command the fine points of the language... Secondly, the brain effort required to master the two languages instead of one certainly diminishes the child's power of learning other things which might and ought to be learnt.

This opinion is typical of the early twentieth

century consensus on the relationship between bilingualism and intelligence. The basic argument was that bilingualism had a negative impact on the linguistic competence of the child, and that the effort required to master two languages meant that other areas of the child's development suffered through the diversion of limited mental resources to language acquisition.

This paradigm was a product of the political realities of the late nineteenth and early twentieth centuries: it was in the interests of the majorities in Western nations to pose a negative relationship between bilingualism and intelligence for several reasons.

First consider the political climate in England at the time that the Cambridge professor alleged the mental and spiritual deficits that accompany bilingualism. At the time, the British occupation of Wales was controversial, and its political control of Wales was not considered to be so absolute that the British did not fear being ousted by the Welsh. As a symbol of nationalism and a potential rallying point for a rebellion, the use of Welsh in Wales was considered dangerous indeed, and was something to be ruthlessly suppressed. In this political climate, it was desirable for 'objective' studies to find bilingualism to be disadvantageous, so that the imposition of a single language, the language of the majority (in this case, English) would be the only language available to the Welsh. Representing bilingualism as likely to cause a deficit in intellectual and spiritual development made the imposition of English not only justifiable, but desirable. Note that the severe punishments recommended for children speaking a second language in Wales applied only to Welsh, which may or may not have actually

been the second language of the children concerned. One could probably assume that the children learned Welsh as their first language from their parents, but that since using Welsh was severely punished in school and other institutions outside the home, English would have soon replaced Welsh as their language of greater competence (Baker, 1993: 107-108).

It is not only England where political considerations dictated a paradigm of a negative relationship between bilingualism and intelligence. In America in the early twentieth century, and right up until the early 1960s, there were political reasons to push the negative aspects of a relationship between bilingualism and intelligence. At the time, there was increased immigration from Eastern Europe to the United States, and the American government was looking for 'objective' reasons to reinforce the imposition of the English language on newly arrived immigrants, and even to deny entry to those immigrants who did not have a competent command of English. They found their support in the early studies into the relationship between intelligence and bilingualism. These studies were used to support the assimilationist policies of the government which sought to eradicate 'divisive' maintenance of the markers of cultural heritage brought to America with the new immigrants. Perhaps the easiest marker for the government to control and actively suppress, and use as a basis for discrimination, was language (Romaine, 1989: 100).

This paradigm did not consider the possibility that language acquisition could be a cooperative and parallel process, where acquiring competence in one language facilitated development of the second language. For the early

research paradigm, the acquisition of two languages was essentially a division of limited resources that could offer no such cooperative benefits.

This is not to say that every study conformed to the expectations of the prevalent research paradigm. During this period, there were two studies which found no relationship between bilingualism and intelligence, and even one (Malherbe, 1946) which dared to contradict the dominant paradigm and assert a positive relationship between bilingualism and intelligence (Lambert, 1980: 4).

The fact that the majority of the early studies found a negative relationship between bilingualism and intelligence is not surprising given the political climate of the period. These studies that propound this negative relationship came under severe criticism in subsequent decades for the many methodological flaws they evinced. In particular, the sampling procedures were criticised, as they made no attempt to control the social variables of class, gender, age, and educational opportunities. There was also very little consideration given to the relative proficiencies of the individuals studied in the languages they were said to speak; that is, there was no attempt to determine the degree of bilingualism (Lambert, 1980: 4).

There were other methodological criticisms of these early studies that are perhaps more damning: there was little, if any, statistical analysis performed on the results from these studies. In some cases, there was not even an attempt to test the data for statistical significance. The correlations that were obtained were wrongly used to infer causal relationships, which correlations of the type found do

not permit, particularly where there are possible mediating variables such as the variables of social class and educational opportunities (Romaine, 1989: 102; Baker, 1993: 109). It must also be noted that the early studies frequently tested bilinguals in their second language, or their language of lesser competence, and then compared these results to the norms of monolingual native speakers (Romaine, 1989: 102). It was also noted that the researchers' classifications of individuals as either monolingual or bilingual were inconsistent, as imprecise criteria were used to assign individuals to one category or the other, making comparisons between studies impossible (Baker, 1993: 110).

By the 1960s, the political climate had started to turn, at least in Canada, as there was growing recognition that bilingualism would play an increasing role in the political future of the nation. Legislation was passed giving English and French equal status in Canada, bolstering the position of French in particular. However, perhaps because of all the negative findings of studies up until this period, there was a widespread fear that bilingualism would negatively affect children raised bilingually. To assuage these fears, there would have to be some evidence that bilingualism did not produce negative effects in bilinguals. The pendulum had swung, and the climate was ripe for researchers to demonstrate a positive relationship between bilingualism and intelligence. This is exactly what happened (Romaine, 1989: 103).

One of the first and most influential studies claiming a positive relationship between bilingualism and intelligence was done by Peal and Lambert (1962; in Romaine, 1989: 103). In this study, they tried to remedy the sources

of bias noted in the early studies: they compared children who came from a single social class and similar educational opportunities, and they drew a distinction between balanced bilinguals and so-called pseudo bilinguals. Pseudo bilinguals were classified as those children who did not have age-appropriate command of the second language, and these children were therefore excluded from Peal and Lambert's study (Romaine, 1989: 103).

On the basis of this study, Lambert (1977:30) rejected the paradigm of divided resources that had been associated with bilingualism:

There is, then, an impressive array of evidence accumulating that argues plainly against the common sense notion that becoming bilingual, that is, having two strings to one's bow or two linguistic systems within one's brain, naturally divides a person's cognitive resources and reduces his efficiency of thought. Instead, one can now put forward a very persuasive argument that there is a definite cognitive advantage for bilingual children in the domain of cognitive flexibility.

While demonstrating the superiority of bilingual children on both verbal and non-verbal measure of intelligence, this study also found that bilinguals might possess an advantage over monolinguals (Lambert, 1980: 5; Romaine, 1989: 104).

Subsequent to this change in political climate, and following in the footsteps of this pioneering study, more and more evidence began to accumulate to support the idea of a positive relationship between bilingualism and intelligence. Studies by Ianco-Worrall (1972), Scott

(1973), Carringer (1974), Lambert (1977), Bialystok (1987), and many others cemented the notion that bilinguals might possess some kind of cognitive advantage, and gave some suggestions as to the form that this cognitive advantage might take. It was suggested that bilinguals might have an advantage in semantic development, divergent thinking, creative thinking, and empathy with others (Lambert, 1962: 131; Lambert, 1977: 330; Romaine, 1989: 104-105).

It seemed as though the 1960s made the words of Leopold (1949; in Miller, 1983: 151) suddenly ring true in the ears of the linguistic community:

Bilingualism may well be a gain, because it induces concentration on the subject matter instead of the words.

While it is easy to see why the political climate shifted in favour of a more positive paradigm regarding the relationship between bilingualism and intelligence, the shift in the attitude of the wider linguistic community shifted partly in response to the perceptions of the middle class of the instrumental value of bilingualism. Researchers began to note the pragmatic and cultural advantages of bilingualism, describing the ways in which bilingualism might advantage the individual: facilitating and enriching travel experiences, increasing the economic opportunities available to the individual, increasing the information resources at the individual's disposal, and so on (Miller, 1983: 143; Fabbro, 1999: 106). Psychologists involved in studies of personality started to discuss the ways in which bilingualism might increase the tools the bilingual individual would have at their disposal on a psychological level (Fabbro,

1999: 106).

While many of these researchers did some careful redesigning of their methodologies so as not to fall victim to the same criticisms the studies of the early twentieth century attracted, there were still some methodological shortcomings in the research sampling techniques and the research designs of these studies which claimed a positive relationship between bilingualism and intelligence. It was sometimes the case that overcoming one set of methodological shortcomings highlighted others. For example, researchers could determine the degree of bilingualism possessed by potential participants, and use only those who were 'balanced' bilinguals (proficient in both languages at an age-appropriate level); however, this prompted other questions: the researchers themselves (Peal & Lambert, 1962: 13; in Romaine, 1989: 106) acknowledged that it was difficult to be sure that there was anything approaching a causal relationship between bilingualism and intelligence, as it is always possible that it is intelligent people who become bilingual, not that bilingualism has any positive effect on intelligence (Lambert, 1962: 137; Humes-Bartlow, 1989: 42; Romaine, 1989: 106; Baker, 1993: 113).

Subsequent studies have tried to allow for this variable. Bain and Yu (1980; in Romaine, 1989: 106) tried to establish a baseline for comparison by selecting their sample of children before they were able to speak, and then dividing the sample into two groups; one group of children were raised to be monolingual, and the others were raised to be bilingual. They were tested over an extended period of time, and gradually, the bilingual children came to outperform the monolingual children on intelligence tests. While this

research design sought to overcome the limitations of earlier research designs, it was still subject to methodological criticism, as the children who were raised bilingually were raised in an additive bilingual environment, which may account for the positive effects found in this study (Romaine, 1989: 106).

The concepts of subtractive and additive bilingualism might be usefully defined at this point in the discussion. Subtractive bilingualism is where developments in fluency in the second language come at the expense of development in fluency of the first language. The experience of bilingualism for these individuals is essentially a negative one, as it subtracts from their linguistic repertoire, and may even mean that the individual never develops full competence in either language. This is often the case for immigrants from lower socioeconomic levels where their first language is a minority language which is in competition with a nationally recognised majority language (Lambert, 1980: 9; Romaine, 1989: 107).

Additive bilingualism, on the other hand, is where developments in fluency in the second language are never in danger of displacing developments in proficiency in the first language. The experience of bilingualism for these individuals is essentially a positive one, as it adds to their linguistic repertoire. This is often the case for the children of the middle classes, where their first language is the nationally recognised majority language, and they are raised in rich linguistic environments where proficiency in both languages is carefully fostered and nurtured (Lambert, 1980: 10; Romaine, 1989: 107). Many researchers have failed to take the social context of acquisition into consideration, and this failure

leaves their conclusions suspect (Baker, 1993: 110).

This is not the only methodological criticism that has been levelled at the studies which have claimed a positive relationship between bilingualism and intelligence. It is sometimes claimed that many researchers have not maintained the necessary evidential standards. Findings are never really applicable to any population other than the sample population, and generalisation to other groups ought to be made both infrequently and with extreme caution. Many studies involving a sample of bilinguals the researchers have deemed to be 'balanced' bilinguals generalise their findings to bilinguals as a group, without making the necessary disclaimer that the results may well not be applicable to those bilinguals who have not reached a certain threshold of competence sufficient for them to be deemed 'balanced' bilinguals (Baker, 1993: 112).

Examining the literature that has accumulated on the subject it becomes clear that the majority of studies indicating a negative relationship between bilingualism and intelligence have considered subtractive bilingualism, while the majority of studies that have indicated a positive relationship between bilingualism and intelligence have considered additive bilingualism.

All of these considerations aside, there are further complications surrounding the issue of the relationship between bilingualism and intelligence: there is the lack of clarity surrounding the concept of intelligence itself. Defining intelligence as a concept still confounds many disciplines, and the issue of intelligence testing is still controversial. Some

researchers are still asking whether there is any such thing as a unitary intelligence, or whether there are several different kinds of intelligence, such as musical intelligence, social intelligence, military intelligence, marketing intelligence, motoring intelligence, or political intelligence. A related issue is that, regardless of the form intelligence is presumed to take, it is not certain that it is possible to measure any form of intelligence through a paper and pencil or computer-based test (Baker, 1993: 108).

There is also the problem of cultural bias. Modern intelligence testing reflects middle class, Caucasian, Western perceptions of what intelligence is. These are not cross-culturally stable, and generalisations across cultural lines are extremely dubious, especially where individuals are tested in a language other than their first language (Baker, 1993: 109).

This discussion raises more questions about any possible relationship between bilingualism and intelligence than it purports to answer. Some experts, such as Fishman (1977:38; in Romaine, 1989: 109), conclude that the question is not whether there is a relationship between bilingualism and intelligence, but under what circumstances which kind of relationship obtains. Still others, such as Hakuta (1986: 43; in Romaine, 1989: 109) conclude that the question, whether there is any relationship between bilingualism and intelligence, is fundamentally flawed, because it reduces the irreducible. They claim that it is simplistic to reduce the effects of bilingualism to simply being either good or bad, and it is misguided to try to examine bilingualism without contemplating whether the social context of bilingualism

under consideration is subtractive or additive (Romaine, 1989: 109).

It is therefore only possible to conclude that the research surrounding this issue to date has been driven by the dominant social paradigm of the time, and these expectations have biased sample choices, research designs and the interpretations of findings. There has been an abundance of evidence gathered to suggest that a relationship does exist between bilingualism and intelligence. However, the vast majority of these studies suffer methodological shortcomings, and for this reason cannot be used to indicate what form this relationship might take, whether positive or negative. The issue, therefore, remains unresolved, and both research and debate into the relationship between bilingualism and intelligence continue unabated.

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